

Chemistry 395, Special topic in Chemistry
Biochemistry of Lipids
Fall 2023

**The instructor reserves the right to make corrections and amends on this document.*

Instructor: Dr. Manisha Ray
Office: FH212
Phone: 773-508-3827
Email: mray2@luc.edu
Lectures: 2:45-3:35 PM, MWF, Flanner Hall, Room 105
Discussions: Any discussion will be covered in office hours
Office Hours: 11:00 AM-12:00 PM on Wednesdays or by appointment in Room no. FH 212

Required materials

Materials (power points, reviews, and journal papers) will be provided as needed by the instructor. Student can follow the chapters from the book, Lehninger principles of Biochemistry, 4th edition onwards. Not required to buy the book.

Course Description

This is a special topic in Biochemistry course that mostly emphasizes important biochemical concepts on lipids, their properties, structure, and function, followed by the experimental methodologies for their detection, quantification. The course will also cover the roles of lipids in biological membrane, membrane transport, including their interaction with membrane proteins, and related biophysical/bioanalytical techniques to study their interactions. As an outcome students will learn details about the importance of studying lipids in our health and diseases.

Grading Policy

There will be **2 tests (preferably), one presentation and one project** during the course. The grading will be based on exams, final presentation on literatures and on the project. Grading will be based on the following:

Two exams: (60%)
Presentation: 20%
Project: (20%)

Grading scale:

A	90% and up
A-	87%-89.99%
B+	82-86.99%
B	77-81.99%
B-	71-76.99%
C+	66-70.99%
C	61-65.99%
C-	56- 60.99%
D	51-55.99%

F

below 50.99%

SCHEDULE OF LECTURES: (subject to change as we continue)

#	Day	Date	Subject	Comment
1	M	08/28	Brief overview of the course	
2	W	08/30	Introduction to Lipids-1	
3	F	09/1	Introduction of Lipids-2	
	M	09/4	Labor day	No class
4	W	09/6	Biosynthesis of Lipids-1	
5	F	09/8	Biosynthesis of Lipids-2	
6	M	09/11	Lipids and their function-1	
7	W	09/13	Lipids and their function-2	
8	F	09/15	Quantification of Lipids-1	
9	M	09/18	Quantification of Lipids-2	
10	W	09/20	In class examples to study	
11	F	09/22	Review	
	M	09/25	Test 1	Test will cover all the lectures from 1-11
12	W	09/27	Biological membrane-1	
13	F	09/29	Biological membrane-2	
14	M	10/2	Membrane dynamics-1	
15	W	10/4	Membrane-dynamics-2	
16	F	10/6	Introduction to membrane protein-1	
	M	10/09	Mid semester break	No class
17	W	10/11	Introduction to membrane protein-2	
18	F	10/13	Membrane transport-1	
19	M	10/16	Example study	
20	W	10/18	Function of membrane protein-1	
21	F	10/20	Function of membrane protein-2	
22	M	10/23	Example study	
23	W	10/25	Biosignaling -1	
24	F	10/27	Biosignaling -2	
25	M	10/30	GPCRs and their function-1	
26	W	11/1	GPCR and their function-2	
27	F	11/3	Biochemical assays to study lipids interaction-2	
28	M	11/6	Biochemical assays to study lipids interaction-2	
29	W	11/8	TBD	
30	F	11/10	TBD	

31	M	11/13	Lipid signaling and drug discovery-1	
32	W	11/15	Lipid signaling and drug discovery-2	
33	F	11/17	Review	
	M	11/20	Test 2 or after thanksgiving break (TBD)	Test will cover lectures after test 1
	W	11/22	Thanksgiving Break	No classes
	F	11/24	Thanksgiving Break	No classes
34	M	11/27	TBD	
35	W	11/29	Example presentation will be provided	
	Fri-Fri	12/1-12/8	Booked for Literature Presentations	
	F	12/11-12/15	Final exam week	Final report due at 11:59 PM (CST)

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****Please note that the schedule is approximate, and the instructor has the right to make any changes in the schedule. However, the changes will be announced in sakai in advance.**

Discussion Activities

Students can discuss any course related topics during the office hours which is on Wednesdays from 11:00 AM to 12:00 PM.

Final Examination

The University sets the schedule for all final exams. The final will be held on Friday, 12/15 from 8:00 AM to 10:00 AM. Here is a link to the LUC academic calendar: www.luc.edu/academics/schedules with important dates and deadlines. **In this course the final report will be due on 12/15/23 by 11:59 pm CST.** Additional time will not be granted, even if you start late. There will be no make-up final exams given under any circumstance, and the exam will not be given early, either. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. A student having four final examinations scheduled for the same date should e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office (apatricoski@luc.edu).

Course Repeat Rule

Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). The Department advises that it is preferable to complete a course with a grade of C or C-, and to demonstrate growth in future coursework, than to withdraw from a course. After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <https://www.luc.edu/chemistry/forms/> and personally meet

and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

Student Accommodations

Loyola University Chicago provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with the Student Accessibility Center (SAC). Professors will receive an accommodation notification from SAC, preferably within the first two weeks of class. Students are encouraged to meet with their professor individually in order to discuss their accommodations. All information will remain confidential. Please note that in this class, software may be used to audio record class lectures in order to provide equitable access to students with disabilities. Students approved for this accommodation use recordings for their personal study only and recordings may not be shared with other people or used in any way against the faculty member, other lecturers, or students whose classroom comments are recorded as part of the class activity. Recordings are deleted at the end of the semester. For more information about registering with SAC or questions about accommodations, please contact SAC at 773-508-3700 or SAC@luc.edu.

Academic Integrity

All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, which can be viewed at: <https://www.luc.edu/cas/advising/academicintegritystatement/>. A basic mission of a university is to search for and to communicate the truth as it is honestly perceived. A genuine learning community cannot exist unless this demanding standard is a fundamental tenet of the intellectual life of the community. Students of Loyola University Chicago are expected to know, to respect, and to practice this standard of personal honesty. Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, submitting false documents, and deliberately disrupting the performance of other class members. Standards apply to both individual and group assignments. This class will not allow using of Artificial Intelligence (AI) in any circumstances. Any work you submit for credit must represent your own ideas and understanding of the assigned material. If you are uncertain about any case where your use of AI may be in conflict with University or course standards, please discuss the concerns with me. An instance of academic misconduct (including those detailed on the website provided above or in this syllabus) will be reported to the Department Chair and the academic Dean's office and they will take necessary steps into action.

Please NOTE: The minimum outcome allowed in the university catalog is a 0 grade on the assessment in question

Independent Effort

Students are referred to <http://www.luc.edu/media/lucedu/cas/pdfs/academicintegrity.pdf> for the CAS Statement on Academic Integrity. Students are advised to download and read the statement as it will be part of the governance of their efforts in the course. Any student found cheating on any examination will receive an automatic "0" for that examination, which cannot be dropped. His (her) name will be reported to the Chairperson of the Chemistry and Biochemistry Department, as well as to the Dean's office of the College of Arts and Sciences, who will decide whether further disciplinary action is necessary. We remind you that academic misconduct will become part of the record and may be transmitted to organizations such as medical schools, dental schools, pharmacy programs, graduate programs, etc. Together, we encourage you to become the best that you can be and will work with you to achieve that goal.

Students with Disabilities

If you have any special needs, please let me know in the first week of classes. The university provides services for students with disabilities. Any student who would like to use any of these university services should contact the Services for Students with Disabilities (SSWD), Sullivan Center, (773) 508-3700. Further information is available at <http://www.luc.edu/sswd/>.

Accommodations for Religious Reasons

If you have observances of religious holidays that will cause you to miss class or otherwise effect your performance in the class you must alert the instructor ***within 10 calendar days of the first class meeting of the semester*** to request special accommodations, which will be handled on a case by case basis.

Loyola University Absence Policy for Students in Co-Curricular Activities

Students missing classes while representing Loyola University Chicago in an official capacity (e.g. intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes. Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation (develop standard form on web) describing the reason for and date of the absence. This documentation must be signed by an appropriate faculty or staff member, and it must be provided as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time. (<https://www.luc.edu/athletheadvising/attendance.shtml>)

Online class specifics

All classes and office hours will be in person unless specifically required due to extreme weather condition. The final presentations may occur via zoom meetings but will preferably take place in class.

Privacy Statement

Assuring privacy among faculty and students engaged in instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.